Human chorionic gonadotrophin as an indicator of persistent gestational trophoblastic neoplasia

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Abstract

Background: Gestational trophoblastic neoplasia (GTN) disease is excessive and inappropriate proliferation of trophoblast after termination of the pregnancy. Many attempts have been made to improve follow-up procedures, but no studies have evaluated Human Chorionic Gonadotrophin (HCG) as a post treatment indicator. Thus we aimed to know β-HCG variability in post treatment pregnancies.

Methods: 40 Molar affected pregnancies were followed post-surgical treatment by serum β-HCG level in a tertiary level hospital. All subjects were treated by evacuation and followed by β-HCG every week for three weeks, then every month for six months.

Results: 30 women were normal (group I) and 10 (group II) diagnosed as GTN cases. Serum β-HCG which obtained serially shown significant differences between two groups (p=0.001). The quantity of β-HCG/week had significantly higher level than normal females (p<0.001)

Conclusion: Our results suggested that β-HCG serum level could be used as a strong indicator for identifying affected patients at early stage.

Keywords: Gestational trophoblastic neoplasia, Molar pregnancy, β-HCG, Chemotherapy.

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uterine evacuation. Despite of importance of β-HCG level in follow up there was no attempt to evaluate post op amounts of serum β-HCG in these patients.

The normal range of free β-HCG has been debated (7-13). Kang et al. (8) suggested that the range of free β-HCG is narrow and constant throughout pregnancy. McGrath et al. (10) suggested high early concentrations which declined prior to the HCG peak. Rangwala et al. (12) and Thomas et al. (14) suggested that free β-HCG concentrations increase rapidly, reaching maximum values at 8-9 weeks of gestation and then declining gradually during the following 11-12 weeks; however, the values remained very low in comparison with those of HCG. Alazzam et al. (13) found a significant free J-HCG peak in the third month of gestation.

Nevertheless, the same studies exhibited considerably more agreement on the concentrations of HCG, which show wide variations at different stages of pregnancy in the same individuals and also among women with pregnancies of the same gestational age. The HCG concentrations also show considerable overlap with abnormally low and high values, which makes the interpretation of any results difficult, especially at the time of the HCG peak at 1-12 weeks of gestation. In addition, the half-life of HCG is probably long. It has been reported to be between 12 h (11-15).

Gestational trophoblastic neoplasia is highly responsive to chemotherapy and prognosis is excellent following treatment, especially in low-risk patients. Some previous studies have examined the link between hCG levels and the likelihood of complete treatment of molar pregnancy without significant difference in the median hCG values when comparing the group that completed low-risk treatment with those that required a change of treatment.

There was no evidence to clarify role of β-HCG in diagnosis of post molar complications. We found that β-HCG decreased more rapidly in non-affected women, however at fewer amounts this fluctuated reversely. Indeed β-HCG/week ratio differed significantly between the groups, reflects that normal patient’s hormone fell more rapid than affected people. Based on our data we resulted that there was a significant differences of β-HCG amount between two groups of post molar women, one which treated completely and other who switched to the GTN. In both groups post molar β-HCG curve decreased however this rate was significantly faster in cured women. It means that post molar β-HCG curve could acts as a suitable guide to show GTN and differed it from healthy cases, and also useful for post molar follow up.

Our study had weak points and lack some dimensions. Hyperglycosilated HCG is an-
other isomer of β-HCG that could appear brightly as a guide factor to detect post molar situation in complicated pregnancies. This type of β-HCG may appear some differences and plays an axis role to differentiated treated post molar pregnancies from GTN.

Conclusions

For first time in this profile we tried to understand variability of β-HCG concentrations based on post molar complications. Our results suggested that β-HCG serum level could be used as a meaningful indicator to distinguish affected patients at early stage of the treatment.

In summary, our data suggests that it is reasonable to rely on post treatment β-HCG to distinguish complicated molar pregnancy from completely treated one.

References